

# JAPAN

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JIS B 0203 (1982) (English): Taper pipe threads

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*The citizens of a nation must  
honor the laws of the land.*

Fukuzawa Yukichi

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# JIS

This English version is for information purpose only.  
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revised in Mar., 1999

## JAPANESE INDUSTRIAL STANDARD

### Taper Pipe Threads

#### JIS B 0203-1982

Translated and Published

by

Japanese Standards Association

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**In the event of any doubt arising,  
the original Standard in Japanese is to be final authority**

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4-1-24, Akasaka, Minato-ku,  
Tokyo, JAPAN 107  
TEL. 03-3583-8002  
FAX. 03-3583-0462

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## JAPANESE INDUSTRIAL STANDARD

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## Taper Pipe Threads

B 0203-1982  
(Reaffirmed: 1992)**1. Scope**

This Japanese Industrial Standard specifies taper pipe threads<sup>(1)</sup> and is applicable to the threads<sup>(2)</sup> used mainly for pressure-tight joints on the threads for jointing pipes, pipe fittings, fluid machinery, etc.

The taper pipe threads of PT 3 $\frac{1}{2}$  and PT 7 to PT 12 in designation and the parallel internal pipe threads of PS 3 $\frac{1}{2}$  and PS 7 to PS 12 shall be as specified in Appendix.

Notes (1) To be pronounced "kudayo" in Japanese.

(2) These do not apply to the screw threads for oil-well pipes and other special products.

Remark: The threads specified in the text of this standard accord with the pipe threads specified in ISO 7/1.

The pipe threads specified in Appendix are not comprehended in ISO 7/1.

**2. Classification**

The taper pipe threads are classified into the taper external pipe threads, taper internal pipe threads and parallel internal pipe threads<sup>(3)</sup>.

Note (3) These parallel internal pipe threads are to be used for the taper external pipe threads, and differ in tolerance from the parallel internal pipe threads specified in JIS B 0202.

**3. Basic Profile, Basic Dimensions and Tolerances**

The basic profile, basic dimensions and tolerances of the taper pipe threads shall be as specified in Attached Table.

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Applicable Standards and Reference Standards: See page 2.

#### 4. Designation

The threads specified in the text of this standard shall be designated by the designation of thread given in Attached Table. Here, the notation R denotes the taper external threads, the notation  $R_c$  the taper internal threads and the notation  $R_p$  the parallel internal threads.

Example: For taper external threads,  $R \ 1\frac{1}{2}$

For taper internal threads,  $R_c \ 1\frac{1}{2}$

For parallel internal threads,  $R_p \ 1\frac{1}{2}$

#### 5. Inspection

The threads having been screwed in accordance with this standard shall, as a rule, be inspected with a screw thread gauge for taper pipe threads specified in JIS B 0253.

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#### Applicable Standards:

JIS B 0202-Parallel Pipe Threads

JIS B 0253-Screw Gauges for Taper Pipe Threads

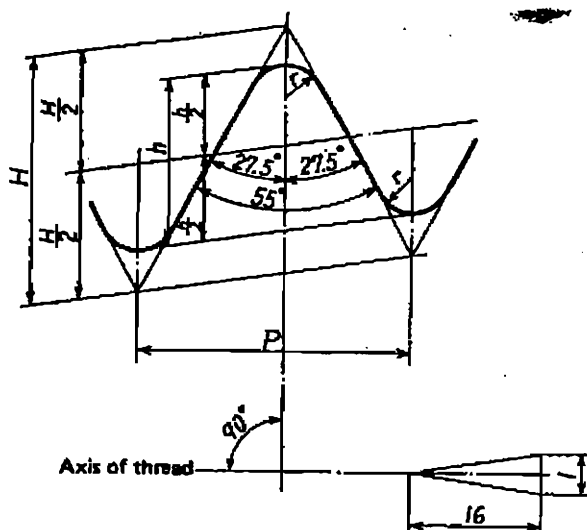
#### Reference Standards:

JIS G 3452-Carbon Steel Pipes for Ordinary Piping

ISO 7/1-1978 Pipe threads where pressure-tight joints are made on the threads - Part 1: Designation, dimensions and tolerances

ISO 1179-1973 Pipe connections for plain end steel and other metal tubes in industrial applications

## Attached Table Basic Profiles, Basic Dimensions and Tolerances

Basic Profile Applied for Taper  
External and Taper Internal Threads

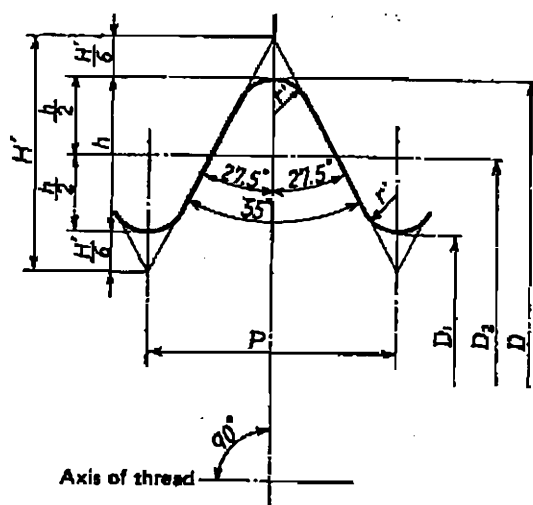
Thick continuous line shows  
basic profile.

$$P = \frac{25.4}{n}$$

$$H = 0.960237 P$$

$$h = 0.640327 P$$

$$r = 0.137278 P$$

Basic Profile Applied for  
Parallel Internal Threads

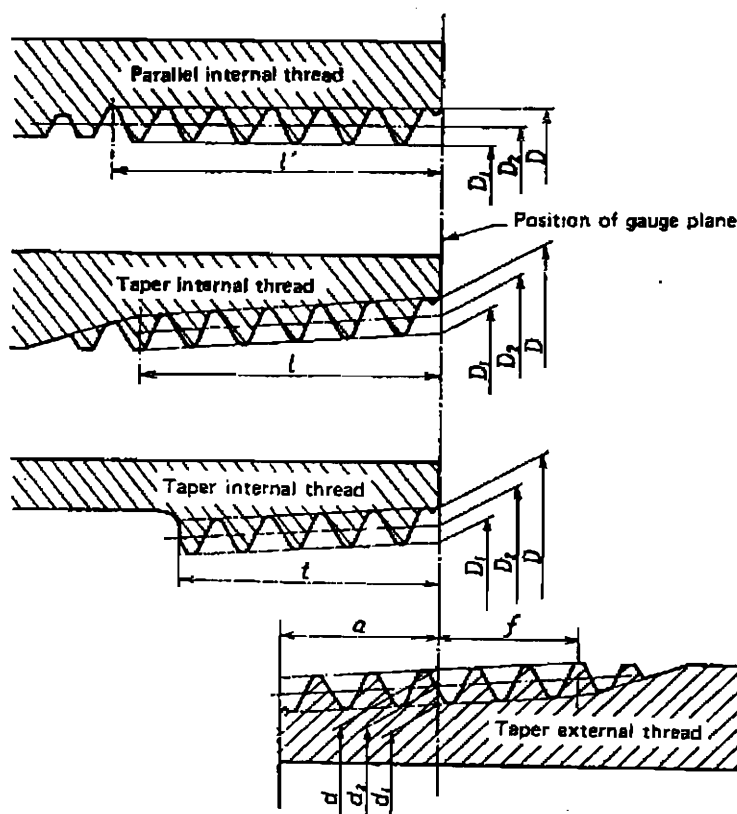
Thick continuous line shows  
basic profile.

$$P = \frac{25.4}{n}$$

$$H' = 0.960491 P$$

$$h = 0.640327 P$$

$$r' = 0.137329 P$$

Fit between Taper External Thread and Taper Internal  
or Parallel Internal Thread



Attached Table (Continued)

Unit: mm

(4) Designation of thread	Thread				Gauge dia.			Position of gauge plane			Tolerance on $D, D_2$ and $D_1$ of parallel internal thread $\pm$	Length of useful thread (min.)				Size of carbon steel pipe for ordinary piping (Given for reference)				
	Number of threads (in 25.4 mm) $n$	Pitch $P$  (Given for reference)	Height of thread $h$	Radius $r$ or $r'$	External thread			External thread		Internal thread		From position of gauge plane toward larger dia. and $f$	Internal thread							
					Major dia. $d$	Pitch dia. $d_2$	Minor dia. $d_1$	From pipe end		At pipe end			When there is incomplete threaded part	Taper internal thread	Partial internal thread					
								Gauge length	Axial tolerance	Axial tolerance								From position of gauge plane toward smaller dia. and $l$	From end of pipe or coupler $l'$ (Given for reference)	From gauge plane or end of pipe or coupler $l$
Major dia. $D$	Pitch dia. $D_2$	Minor dia. $D_1$	$a$	$\pm b$	$\pm c$	$l$	$l'$	$l$	Outside dia.	Thick-ness										
R $\frac{1}{16}$	28	0.9071	0.581	0.12	7.723	7.142	6.561	3.97	0.91	1.13	0.071	2.5	6.2	7.4	4.4	—	—			
R $\frac{1}{8}$	28	0.9071	0.581	0.12	9.728	9.147	8.566	3.97	0.91	1.13	0.071	2.5	6.2	7.4	4.4	10.5	2.0			
R $\frac{1}{4}$	19	1.3368	0.856	0.18	13.157	12.301	11.445	6.01	1.34	1.67	0.104	3.7	9.4	11.0	6.7	13.8	2.3			
R $\frac{3}{8}$	19	1.3368	0.856	0.18	16.662	15.806	14.950	6.35	1.34	1.67	0.104	3.7	9.7	11.4	7.0	17.3	2.3			
R $\frac{1}{2}$	14	1.8143	1.162	0.25	20.955	19.793	18.631	8.16	1.81	2.27	0.142	5.0	12.7	15.0	9.1	21.7	2.8			
R $\frac{3}{4}$	14	1.8143	1.162	0.25	26.441	25.279	24.117	9.53	1.81	2.27	0.142	5.0	14.1	16.3	10.2	27.2	2.8			
R 1	11	2.3091	1.479	0.32	33.249	31.770	30.291	10.39	2.31	2.89	0.181	6.4	16.2	19.1	11.6	34	3.2			
R $1\frac{1}{4}$	11	2.3091	1.479	0.32	41.910	40.431	38.952	12.70	2.31	2.89	0.181	6.4	18.5	21.4	13.4	42.7	3.5			
R $1\frac{1}{2}$	11	2.3091	1.479	0.32	47.803	46.324	44.845	12.70	2.31	2.89	0.181	6.4	18.5	21.4	13.4	48.6	3.5			
R 2	11	2.3091	1.479	0.32	59.614	58.135	56.656	15.88	2.31	2.89	0.181	7.5	22.8	25.7	16.9	60.5	3.8			
R $2\frac{1}{2}$	11	2.3091	1.479	0.32	75.184	73.705	72.226	17.46	3.46	3.46	0.216	9.2	26.7	30.1	18.6	76.3	4.2			
R 3	11	2.3091	1.479	0.32	87.884	86.405	84.926	20.64	3.46	3.46	0.216	9.2	29.8	33.3	21.1	89.1	4.2			
R 4	11	2.3091	1.479	0.32	113.030	111.551	110.072	25.40	3.46	3.46	0.216	10.4	35.8	39.3	25.9	114.3	4.5			
R 5	11	2.3091	1.479	0.32	138.430	136.951	135.472	28.58	3.46	3.46	0.216	11.5	40.1	43.5	29.3	139.8	4.5			
R 6	11	2.3091	1.479	0.32	163.830	162.351	160.872	28.58	3.46	3.46	0.216	11.5	40.1	43.5	29.3	165.2	5.0			

Note (4) This designation is for taper external thread; for taper or parallel internal thread, the notation R shall be substituted by  $R_c$  and  $R_p$ , respectively. (See 4.)

- Remarks 1. The notations R,  $R_c$  and  $R_p$  in the table representing pipe threads may be omitted as necessary.
2. The thread shall be perpendicular to the axis, and the pitch shall be measured in parallel with the axis.
3. The length of useful thread is the length of completely screwed part, except the last several threads which may be truncated at the crest by its intersection with the cylindrical surface of the pipe or coupler. The chamfered end of the pipe or coupler, if any, is included in the length of useful thread part.
4. When it is difficult to make the dimension  $a$ ,  $f$  or  $l$  conform to the figure in this table, refer it to the appropriate standard of the component.

## Appendix Taper Pipe Threads Not Comprehended in ISO 7/1

### 1. Scope

This Appendix specifies the taper pipe threads not comprehended in ISO 7/1, and shall be applied to the threads used mainly for pressure-tight joints on the threads to joint pipes, pipe fittings, fluid machinery, etc.

The study for and against the existence of the thread specification in this Appendix is scheduled on every occasion of reviewing this standard.

### 2. Classification

The taper pipe threads are classified into the taper external pipe threads, taper internal pipe threads and parallel internal pipe threads<sup>(1)</sup>.

Note (1) These parallel internal pipe threads are to be used for the taper external pipe threads, and differ in tolerance from the parallel internal pipe threads specified in Appendix of JIS B 0202.

### 3. Basic Profile, Basic Dimensions and Tolerances

The basic profile, basic dimensions and tolerances of the taper pipe threads shall comply with Appendix Table.

### 4. Designation

The threads complying with this Appendix shall be designated by the designation of threads given in Appendix Table. Here, for denoting the parallel internal pipe threads mating taper external pipe threads, the notation PS shall be used in place of PT.

Example: For taper external pipe threads and taper internal pipe threads, PT  $3\frac{1}{2}$

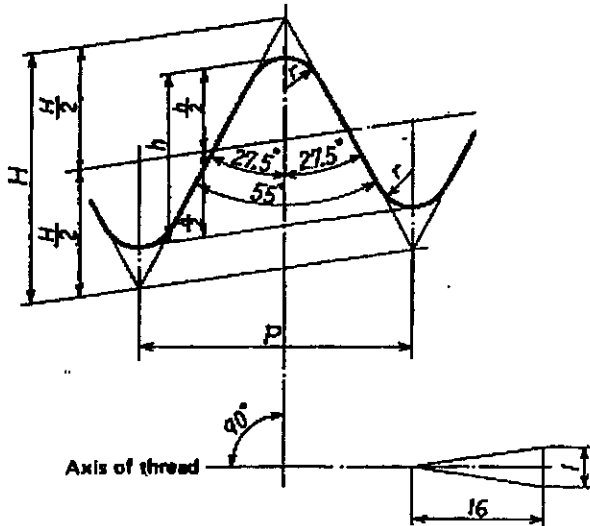
For parallel internal pipe threads mating taper external pipe threads, PS  $3\frac{1}{2}$

### 5. Inspection

The threads having been screwed in accordance with this Appendix shall be made, as a rule, with a taper screw thread gauge specified in JIS B 0253.

## Appendix Table Basic Profiles, Basic Dimensions and Tolerances

Basic Profile Applied for Taper  
External and Taper Internal Threads



Thick continuous line shows  
basic profile.

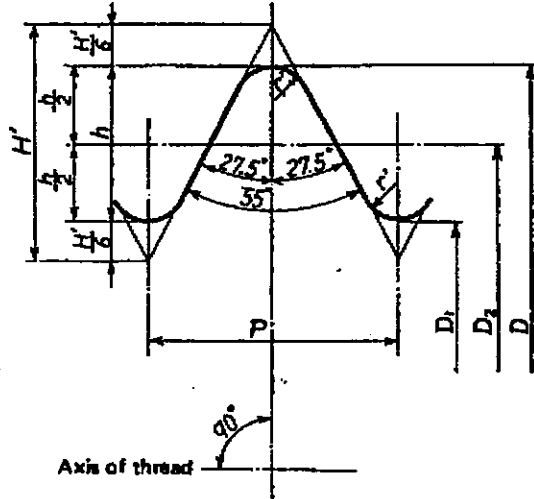
$$p = \frac{25.4}{n}$$

$$H = 0.960237 P$$

$$h = 0.640327 P$$

$$r = 0.137278 P$$

Basic Profile Applied for  
Parallel Internal Threads



Thick continuous line shows  
basic profile.

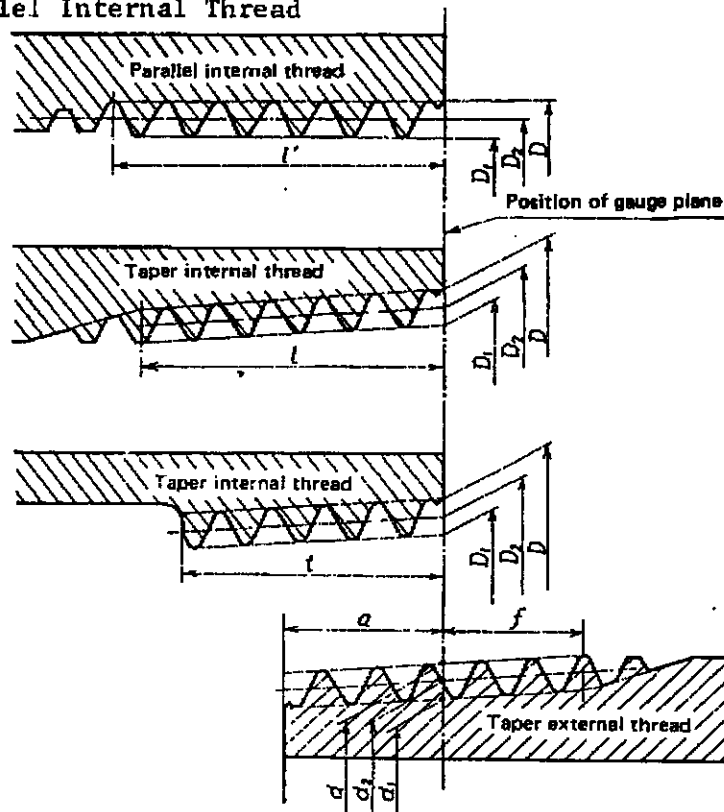
$$p = \frac{25.4}{n}$$

$$H' = 0.960491 P$$

$$h = 0.640327 P$$

$$r' = 0.137329 P$$

Fit between Taper External Thread and Taper Internal  
or Parallel Internal Thread



Appendix Table (Continued)

Unit: mm

(2) Designation of thread	Thread				Gauge dia.			Position of gauge plane			Tolerance on $D, D_2$ and $D_1$ of parallel internal thread $\pm$	Length of useful thread (min.)				Size of carbon steel pipe for ordinary piping (Given for reference)		
	Number of threads (in 25.4 mm) $n$	Pitch $P$ (Given for reference)	Height of thread $H$	Radius $r$ or $r'$	External thread			External thread		Internal thread		From position of gauge plane toward larger dia. end $f$	Internal thread					
					Major dia. $d$	Pitch dia. $d_2$	Minor dia. $d_1$	From pipe end		At pipe end			When there is incomplete threaded part	Taper internal thread	Parallel internal thread			
								Gauge length	Axial tolerance	Axial tolerance								
																Internal thread		
																Major dia. $D$	Pitch dia. $D_2$	Minordia $D_1$
PT 1/8	28	0.9071	0.581	0.12	9.728	9.147	8.566	3.97	0.91	1.13	0.071	2.5	6.2	7.4	4.4	10.5	2.0	
PT 1/4	19	1.3368	0.856	0.18	13.157	12.301	11.445	6.01	1.34	1.67	0.104	3.7	9.4	11.0	6.7	13.8	2.3	
PT 3/8	19	1.3368	0.856	0.18	16.662	15.806	14.950	6.35	1.34	1.67	0.104	3.7	9.7	11.4	7.0	17.3	2.3	
PT 1/2	14	1.8143	1.162	0.25	20.955	19.793	18.631	8.16	1.81	2.27	0.142	5.0	12.7	15.0	9.1	21.7	2.8	
PT 3/4	14	1.8143	1.162	0.25	26.441	25.279	24.117	9.53	1.81	2.27	0.142	5.0	14.1	16.3	10.2	27.2	2.8	
PT 1	11	2.3091	1.479	0.32	33.249	31.770	30.291	10.39	2.31	2.89	0.181	6.4	16.2	19.1	11.5	34.0	3.2	
PT 1 1/4	11	2.3091	1.479	0.32	41.910	40.431	38.952	12.70	2.31	2.89	0.181	6.4	18.5	21.4	13.4	42.7	3.5	
PT 1 1/2	11	2.3091	1.479	0.32	47.803	46.324	44.845	12.70	2.31	2.89	0.181	6.4	18.5	21.4	13.4	48.6	3.5	
PT 2	11	2.3091	1.479	0.32	59.614	58.135	56.656	15.08	2.31	2.89	0.181	7.5	22.8	25.7	16.9	60.5	3.8	
PT 2 1/2	11	2.3091	1.479	0.32	75.184	73.705	72.226	17.46	3.46	3.46	0.216	9.2	26.7	30.1	18.6	76.3	4.2	
PT 3	11	2.3091	1.479	0.32	87.884	86.405	84.926	20.64	3.46	3.46	0.216	9.2	29.8	33.3	21.1	89.1	4.2	
PT 3 1/2	11	2.3091	1.479	0.32	100.330	98.851	97.372	22.23	3.46	3.46	0.216	9.2	31.4	34.9	22.4	101.6	4.2	
PT 4	11	2.3091	1.479	0.32	113.030	111.551	110.072	25.40	3.46	3.46	0.216	10.4	35.8	39.3	25.9	114.3	4.5	
PT 5	11	2.3091	1.479	0.32	138.430	136.951	135.472	28.58	3.46	3.46	0.216	11.5	40.1	43.5	29.3	139.8	4.5	
PT 6	11	2.3091	1.479	0.32	163.830	162.351	160.872	20.50	3.46	3.46	0.216	11.5	40.1	43.5	29.3	165.2	5.0	
PT 7	11	2.3091	1.479	0.32	189.230	187.751	186.272	34.93	5.08	5.08	0.318	14.0	48.9	54.0	35.1	190.7	5.3	
PT 8	11	2.3091	1.479	0.32	214.630	213.151	211.672	38.10	5.08	5.08	0.318	14.0	52.1	57.2	37.6	216.3	5.8	
PT 9	11	2.3091	1.479	0.32	240.030	238.551	237.072	38.10	5.08	5.08	0.318	14.0	52.1	57.2	37.6	241.8	6.2	
PT 10	11	2.3091	1.479	0.32	265.430	263.951	262.472	41.28	5.08	5.08	0.318	14.0	55.3	60.4	40.2	267.4	6.6	
PT 12	11	2.3091	1.479	0.32	316.230	314.751	313.272	41.28	6.35	6.35	0.397	17.5	58.8	65.1	41.9	318.5	6.9	

Note (2) This designation is for taper external and taper internal threads, and for the parallel internal threads mating taper external threads, the notation PT shall be substituted by PS. (See 4. in Appendix.)

- Remarks 1. The notations PT and PS in the table representing taper pipe threads may be omitted as necessary.
2. The thread shall be perpendicular to the axis, and the pitch shall be measured in parallel with the axis.
3. The length of useful thread is the length of completely screwed part, except the last several threads which may be truncated at the crest by its intersection with the cylindrical surface of the pipe or coupler. The chamfered end of the pipe or coupler, if any, is included in the length of useful thread part.
4. When it is difficult to make the dimension  $a$ ,  $f$  or  $l$  conform to the figure in this table, refer it to the appropriate standard of the component.
5. The contents of this Table in enclosed zones are out of specification of this Appendix, but are the same as those for the threads of R1/8 to R3 and R4 to R6 in designation specified in Appendix of the text. However, it is recommended that these should not be used from the viewpoint of harmonization with ISO standards, since the designation of threads are different.

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B 0203-1982  
Edition 11

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**Japanese Text**

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**Divisional Council on Machine Elements**

**Technical Committee on Screw Threads (Basic)**

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英訳 JIS B0203:82

Appendix Table の不鮮明部分 (p 4, 7)

日本語:① 不完全ねじ部がない場合

英語: ① When there is no incomplete thread part

日本語: ② テーパーめねじ, 平行めねじ

英語: ② Taper internal thread, parallel internal thread